

19990403.ba v02\_n487.bam.990403 v02\_n488.bam.990403

>From ???@??? Sun Apr 04 05:32:44 1999  
Message-Id: <199904031201.GAA04407@sco.theporch.com>  
Date: Sat, 3 Apr 1999 06:01:28 CST  
From: Old Tube Radios <boatanchors@theporch.com>  
To: Old Tube Radios <boatanchors@theporch.com>  
Subject: BOATANCHORS digest 2487

BOATANCHORS Digest 2487

Topics covered in this issue include:

- 1) Emergency Mil Radios  
by Tom Clarke <fclarke@erols.com>
- 2) Re: Two Mysteries  
by John Shriver <jas@shiva.com>
- 3) Re: Two Mysteries  
by N5CM@aol.com
- 4) Re: interesting BA--WWV comparator--help needed  
by N5CM@aol.com
- 5) Re: Two Mysteries  
by GEORGE J MISIC <ke8rn@juno.com>
- 6) Re: Info wanted: ITECO Powertron Model 160  
by Arden Allen <gumbear@pacbell.net>
- 7) SCR-503-B  
by Lenox Carruth <carruth@geo-thermal.com>
- 8) Re: Emergency Mil Radios  
by Steve Berg <z931086@corn.cso.niu.edu>
- 9) Re: SCR-503-B  
by Al Klase <skywaves@bw.webex.net>
- 10) Re: interesting BA--WWV comparator--help needed  
by Bill Hawkins <bill@iaxs.net>
- 11) RE: Two Mysteries  
by "Christopher A. Bowne" <radiobwn@riconnect.com>
- 12) BC 1147-A ??????  
by JESelkregg@aol.com
- 13) Rebuilding paper caps  
by "John Gibson" <gibsonj@mindspring.com>
- 14) RE: Vibrator resuscitation  
by "ROBERT W. DOWNS" <RWDowns\_WA5CAB@compuserve.com>
- 15) RE: SCR-503B  
by "Richard" <rbrunner@gis.net>
- 16) Re: Protecting Transformers, was Inrush Protectors  
by Paul Nelson <drhydro@ames.net>
- 17) Line Voltage  
by "Barry L. Ornitz" <ornitz@tricon.net>
- 18) [Fwd: technical manual]

by "John Dilks, K2TQN" <oldradio@worldnet.att.net>  
19) Re: Two Mysteries  
by "Steve" <scb@loki.internettport.net>  
20) FMLA: Defiance  
by mnhopkins@juno.com

-----  
Message-Id: <3.0.5.32.19990402085405.007bd7c0@pop.erols.com>  
Date: Fri, 02 Apr 1999 08:54:05 -0500  
To: Old Tube Radios <boatanchors@theporch.com>  
From: Tom Clarke <fclarke@erols.com>  
Subject: Emergency Mil Radios  
Mime-Version: 1.0  
Content-Type: text/plain; charset="us-ascii"

When I was in avionics, and I'm sure the "band" is probably the same, the UHF sets tuned from 225.0 to 399.9 Mhz. At that time in 100 Khz steps, AM. I think it moves in 50 Khz steps now.

<<Most radios do 12.5 and the new ARC-210 boxes can do 8.33>>

121.5 and 243.0 are the "guard" or emergency calling channels and most of the survival radios we had operated on those frequencies. The later sets we got did just 243.0 Mhz. This was some years ago.

<<Still are, and some of the newer emergency radios do 406 (to cover the russian SARSATS) along with 282.8 to move the chatter off the guard channel.>>

This was Air Force. The Navy did the same thing on the other side of the base I was last. I do know the ARMY choppers/fixed wing aircraft used FM for air to ground in the 30-75 Mhz band commonly used by the ground troops' field radios. Like the old PRC-25. I have no idea what the Army used for an "emergency" channel in that band.

<<I think it is 41.0, but will look in the airplane next time to see what comes up when FM guard is selected! It also works on 52.525, which is entertaining during those long flights!>>

<<Some of the new high tech Whizzy stuff available includes GPS and beacon modes. Should really help pinpoint the bubbas that find themselves down in the dirt having abruptly left their flying machines. >>

73 de Tom/W40KW

73,

Sandy W5TVW

M

-----  
Date: Fri, 2 Apr 1999 09:30:33 -0500  
Message-Id: <199904021430.JAA00742@brill.shiva.com>  
From: John Shriver <jas@shiva.com>  
To: Old Tube Radios <boatanchors@theporch.com>  
CC: boatanchors@theporch.com  
Subject: Re: Two Mysteries

As for IBM tubes, IBM built, sold, and serviced MANY computers that were entirely based on vacuum tubes. The IBM 704 was a quite popular computer using tubes. Yes, the logic elements may generally have been 6SN7 or 6SL7, but they may have used the 25L6GT as a clock driver. Or, more likely, it was used to drive a peripheral, perhaps a solenoid in a card punch.

Or, it may have been part of the IBM-designed and built SAGE air defense system, which was a very large computerized radar system for tracking incoming missiles. Could have been a CRT deflection amp.

Or, it may have gone someplace in lowly IBM tab equipment, somewhere in a card punch or tabulator. The 25V filament strikes me as a strange thing to use in a large computer, which almost certainly would have used 6 or 12 volt filament strings. I think that an 024 card punch had a 100 VDC power supply in it, so four of those could have been hung in series across that.

-----  
From: N5CM@aol.com  
Message-ID: <fe8ae2d7.243633a9@aol.com>  
Date: Fri, 2 Apr 1999 09:52:25 EST  
Subject: Re: Two Mysteries  
To: Old Tube Radios <boatanchors@theporch.com>  
CC: boatanchors@theporch.com  
MIME-Version: 1.0  
Content-Type: text/plain; charset="us-ascii"  
Content-Transfer-Encoding: 7bit

GM Bob,

The lead cylinder is indeed a "shield". I ran across one of the same decades ago but don't remember what kind of equipment it was used in. Maybe it was in a Regenerative Receiver to minimize radiation of the oscillations.

73, Ken....N5CM....

-----

From: N5CM@aol.com  
Message-ID: <fa7a2aad.2436360c@aol.com>  
Date: Fri, 2 Apr 1999 10:02:36 EST  
Subject: Re: interesting BA--WWV comparator--help needed  
To: Old Tube Radios <boatanchors@theporch.com>  
CC: boatanchors@theporch.com  
MIME-Version: 1.0  
Content-Type: text/plain; charset="us-ascii"  
Content-Transfer-Encoding: 7bit

Hi Dave,

Sounds like the "Comparator" you have is similiar in function to a comparator that was used with two CV-89 radioteletype converters for dual diversity reception. The comparator had the separate mark and space signals from both converters fed into it and constantly compared the two mark signals and electronically switched to the stronger of the two instantaneously. It did the same for the space signals so that it always copied the strongest of the two space signals and the strongest of the mark signals.

Yours may work in the same manner - constantly comparing the input from two WWV channels and selecting the stronger of the two.

Maybe it was designed to be used in scientific applications where a precise time base was necessary on a continuing basis to minimize loss of signal.

Hope this helps.

73, Ken....N5CM....

-----  
To: Old Tube Radios <boatanchors@theporch.com>  
Cc: boatanchors@theporch.com  
Subject: Re: Two Mysteries  
Message-ID: <19990402.120134.6535.1.KE8RN@juno.com>  
From: GEORGE J MISIC <ke8rn@juno.com>  
Date: Fri, 02 Apr 1999 11:07:35 EST

My thoughts on the mysteries IN CAPS:

>Mystery #1 I found two shields which fit a normal 7 pin miniature  
>tube, made from the usual shiny sheet metal. What makes them a  
>mystery is that they have a lead cylinder pushed down around the outside  
of

>the shield, its about 11/4 long and 1/8 thick. Judging from the markings  
>on the shield and cylinder and the details of the construction, I believe  
>that the lead cylinder was indeed part of the shield as manufactured.

COULD BE TO ADD MASS TO PREVENT MICROPHONIC RESPONSES, OR IT COULD BE MU METAL TO PROVIDE MAGNETIC SHIELDING; THE MAGNETIC SHIELDING PREVENTS DEFLECTION OF THE ELECTRON BEAM IN THE TUBE FROM EXTERNAL MAGNETIC FIELDS.

>Mystery #2 I found two 25L6GT's in the assortment, nothing unusual  
>about that, except that the tubes are marked IBM. One is even in the  
>original box, marked IBM part 192906 25L6GT. I can't imagine that  
>anything IBM ever built needed an audio output tube.

I'VE SEEN THESE TUBES USED IN DIGITAL VACUUM TUBE CIRCUITRY; I HAVE A FEW PLUG IN ASSEMBLIES USING A BATCH OF 25L6 TUBES THAT I BOUGHT AS SURPLUS ABOUT 35 YEARS AGO. THEY ARE EITHER FROM AN IBM OR UNIVAC COMPUTER OF THE 1950'S.

73,

George KE8RN

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You don't need to buy Internet access to use free Internet e-mail.  
Get completely free e-mail from Juno at <http://www.juno.com/getjuno.html>  
or call Juno at (800) 654-JUNO [654-5866]

---

Date: Fri, 02 Apr 1999 08:45:01 -0800  
From: Arden Allen <[gumbear@pacbell.net](mailto:gumbear@pacbell.net)>  
Subject: Re: Info wanted: ITECO Powertron Model 160  
To: Old Tube Radios <[boatanchors@theporch.com](mailto:boatanchors@theporch.com)>  
Message-id: <0F9K00ACEMR6GN@mta2.snfc21.pbi.net>  
MIME-version: 1.0  
Content-type: text/plain; charset=ISO-8859-1  
Content-transfer-encoding: 7bit

> .....What is the max. output power?

With four 6550's it could be 100 watts with a decent sine wave or considerably more (150W) depending on class of operation and waveform.

Arden Allen KB6NAX Vallejo, CA [gumbear@pacbell.net](mailto:gumbear@pacbell.net)

---

Message-ID: <3704F42C.AAA21BBC@geo-thermal.com>  
Date: Fri, 02 Apr 1999 10:45:32 -0600  
From: Lenox Carruth <carruth@geo-thermal.com>  
MIME-Version: 1.0  
To: Old Tube Radios <boatanchors@theporch.com>  
Subject: SCR-503-B  
Content-Type: text/plain; charset=us-ascii  
Content-Transfer-Encoding: 7bit

I have just acquired a SCR-503-B. It is in a trunk which contains Radio Receiver BC-973-B and Control Unit AM-35-B, two headsets, a fabric cover and four tubes. Unfortunately, there is no manual and no power supply.

The unit is obviously a direction finding receiver but there is a place in the trunk for a microphone. Does anyone know how this thing was used?

Does anyone have a manual (original or copy) and/or an extra power supply, power supply cable, etc.?

--

Lenox

-----  
Lenox Carruth                      Dallas, TX                      carruth@geo-thermal.com  
Collector of WW-II Communications Equipment and Memorabilia

Wanted:              TBX accessories,              GY-11,              WW-II era Sextant  
-----

-----  
Message-ID: <3704F66C.D81C99CD@corn.cso.niu.edu>  
Date: Fri, 02 Apr 1999 10:55:08 -0600  
From: Steve Berg <z931086@corn.cso.niu.edu>  
MIME-Version: 1.0  
To: Old Tube Radios <boatanchors@theporch.com>  
CC: Old Tube Radios <boatanchors@theporch.com>  
Subject: Re: Emergency Mil Radios  
Content-Type: text/plain; charset=us-ascii  
Content-Transfer-Encoding: 7bit

When I was pedestrian mobile in the boonies back in the late 1960's we did not have any emergency frequency to contact aircraft. The only liaison we had with the Air Force was through their forward air controllers. The one we normally used was Rash 23. We could not even contact our own Army helicopters in an emergency. One night my unit was strafed by one of my division's "nighthawk" units. We had no way to

know what frequency they were on, and had to frantically call our battalion radio operators to get hold of them. We were seriously considering shooting them down, but we noticed they had 3 cobra gunships orbiting up above. We could handle one Huey, but 3 cobras were a bit out of the question.

Steve WA9JML

-----  
Message-ID: <37051225.E7819D48@bw.webex.net>  
Date: Fri, 02 Apr 1999 13:53:25 -0500  
From: Al Klase <skywaves@bw.webex.net>  
MIME-Version: 1.0  
To: Old Tube Radios <boatanchors@theporch.com>  
CC: Old Tube Radios <boatanchors@theporch.com>  
Subject: Re: SCR-503-B  
Content-Type: text/plain; charset=us-ascii  
Content-Transfer-Encoding: 7bit

You'll find some sketchy info and schematics at:  
<http://www.telalink.net/~badger/millist/mi.html>

Appears receiver has two front ends, IF's, and detectors fed from a single L0. Connects to a crossed loop antenna and the BC-991 oscilloscope.

73, Al

Lenox Carruth wrote:

>  
> I have just acquired a SCR-503-B. It is in a trunk which contains Radio  
> Receiver BC-973-B and Control Unit AM-35-B, two headsets, a fabric cover  
> and four tubes. Unfortunately, there is no manual and no power supply.  
>  
> The unit is obviously a direction finding receiver but there is a place  
> in the trunk for a microphone. Does anyone know how this thing was  
> used?  
>  
> Does anyone have a manual (original or copy) and/or an extra power  
> supply, power supply cable, etc.?  
>  
> --  
>  
> Lenox  
>  
> -----  
> Lenox Carruth                      Dallas, TX                      carruth@geo-thermal.com  
> Collector of WW-II Communications Equipment and Memorabilia

>  
> Wanted:           TBX accessories,           GY-11,           WW-II era Sextant  
> -----

--  
Al Klase - N3FRQ  
skywaves@bw.webex.net  
Flemington, NJ 08822  
Web Page: <http://www.webex.net/~skywaves/home.htm>

-----  
Date: Fri, 2 Apr 1999 13:07:53 -0600 (CST)  
From: Bill Hawkins <bill@iaxs.net>  
Message-Id: <199904021907.NAA08828@citrus.iaxs.net>  
To: Old Tube Radios <boatanchors@theporch.com>  
Subject: Re: interesting BA--WWV comparator--help needed

This fascinating receiver is worthless without a crystal or better frequency standard. The standard can put out 100KC or 1 MC, which should be connected to the appropriate input. The receiver picks up WWV on 5 or 15 MC (not 10). A clever multiplier and heterodyne setup produces two 10 MC sine waves, one derived from WWV and the other from the standard. The WWV signal drives a phase shift network that produces a circular sweep on the scope. The standard signal intensity modulates the beam. When it's working right, you see a half circle on the scope, slowly rotating. If it rotates at 1 rev per second, your standard is off by 1 part in  $10^7$  (1 cps in 10 MC). If your standard is good to  $10^9$ , the rotation period is 100 seconds.

Tried mine several years ago against an HP-103 crystal standard, good to better than  $10^9$ . Conditions in Minneapolis were such that WWV would fade out and WWVH (Hawaii) would fade in. The half circle would flip from one side of the scope to the other, showing the phase difference between the two stations (caused by distance, I hope).

Let me know if you can't find a book. I'm buried in other work, and would have to find the book to copy it. If you don't have and don't want a standard, put the set up for sale. I'd pay \$100 for it if I didn't already have one.

Right now I use a mechanical clock (HP-113) to see how many seconds a year my standard drifts. Got one of those HP-117 WWVB receivers with chart recorder, but not the loop antenna with its 60 KC filter. Tried to build my own loop, but there is severe 60 KC interference from a neighbor's computer monitor.

Ah, well, it's always nice to have projects waiting for retirement.



Regards,  
Bill Hawkins

-----  
Message-ID: <01BE7D1F.8FBDEE80@mys9.riconnect.com>  
From: "Christopher A. Bowne" <radiobwn@riconnect.com>  
To: Old Tube Radios <boatanchors@theporch.com>  
Cc: "boatanchors@theporch.com" <boatanchors@theporch.com>  
Subject: RE: Two Mysteries  
Date: Fri, 2 Apr 1999 15:43:19 -0500

I thought that lead shields were used to minimize X-Ray radiation from the CRT HV recitifiers in TV sets. I remember that this became big concern in the late 60s because of the higher voltages required by the large color CRTs, and eventually, radiation standards were established to minimize exposure. As I recall, some of the X radiation levels from pre-sheilding standard sets were quite high.

Mom was right when she said not to sit too close to the screen!

73,

Chris Bowne  
AJ1G  
Stonington, CT  
radiobwn@riconnect.com

83 240 Turbo - 162K  
(Ooops - wrong list - disregard unless you are a Swedishbrickster too!)

-----  
From: JESelkregg@aol.com  
Message-ID: <3e3083e6.24368701@aol.com>  
Date: Fri, 2 Apr 1999 15:48:01 EST  
Subject: BC 1147-A ??????  
To: Old Tube Radios <boatanchors@theporch.com>  
MIME-Version: 1.0  
Content-Type: text/plain; charset="us-ascii"  
Content-Transfer-Encoding: 7bit

I have a BC1147A. Its about the same size as an RBA/B/C. Has a built in speaker, covers 1.5 to 30 Kcs, dark green wrinkle front, grey chassis & components, rack mount, built by Magnavox. I was told by the seller that it was a moral receiver, most others inform me that it was a D.F. receiver which I think is most likely.

Any detailed information available, manual?

I can't find it in any mil. list.

Thanks in advance,  
Joe Selkregg

-----  
Message-Id: <199904022058.PAA26752@smtp3.mindspring.com>  
Date: Fri, 02 Apr 1999 11:10:46 +0100  
Subject: Rebuilding paper caps  
From: "John Gibson" <gibsonj@mindspring.com>  
To: Old Tube Radios <boatanchors@theporch.com>  
Mime-version: 1.0  
Content-type: text/plain; charset="US-ASCII"  
Content-transfer-encoding: 7bit

Being a fanatical restorer of the worst kind, I like to make a receiver of the better class look original after restoration, and have been rebuilding its paper caps using the following technique.

Drop the waxed paper caps into a jar of paint thinner with a lid and leave for a month or so. The guts can then be easily pushed out. Clean up the empty paper cylinders with fresh thinner and allow to dry well.

Take a new plastic cap of the correct value and voltage - it will always be smaller - wrap tissue or wool yarn around its midrift so that it will hold its position in the center of the old cylinder. Saturate the tissue/yarn with casting resin. After it sets, mount the cap vertically, it helps to stick one lead into a block of styrofoam, and fill the top end to the brim with resin tinted to resemble wax (see my recent post on tinting casting resin/epoxy). After it sets invert the cap and do the other end.

I consider the leads on new caps to be too slim so usually cut the original leads short and solder on thicker wires. No butt joints here, loup the two ends together.

Needless to say , you rebuild a dozen or so at a time!

John Gibson.

P.S. Am looking for a presentable T1154 or HT20.

-----  
Date: Fri, 2 Apr 1999 16:08:55 -0500  
From: "ROBERT W. DOWNS" <RWDowns\_WA5CAB@compuserve.com>  
Subject: RE: Vibrator resuscitation  
To: Old Tube Radios <boatanchors@theporch.com>  
Message-ID: <199904021609\_MC2-706B-901C@compuserve.com>  
MIME-Version: 1.0  
Content-Transfer-Encoding: quoted-printable  
Content-Type: text/plain; charset=ISO-8859-1  
Content-Disposition: inline

Richard, Al, and Group,

Some years ago, I acquired a bunch of NOSB PE-104's (BC-654 receiver supply) and discovered that almost without exception, the VS-3 vibrators were inoperative, both the ones in the units and the boxed spares. I started opening them up and burnishing the contacts, and fixed a few. Even went so far as to make a die to re-crimp the case after repair. Then, Tom, WA5OPE, sent me a copy of an article from a West Coast antique radio collector's news letter (I'm sure that I still have it around here somewhere but a quick search didn't turn it up, or I would have given credit to the author). It gave some detailed instructions for restoring vibrators using the 115VAC/light bulb method mentioned by Al.

Since then, I have restored 30 or 40 vibrators of various types. I prefer to use a 25 watt bulb. They are smaller and don't take up as much room as a 40, and seem to work just as well. You need at least two bulbs to clear all of the contacts, one to run the vibrator, and the other to clear the other contacts. Typical times have run from a few seconds to overnight. I recently fixed a VB-8, and the fourth contact took more than four hours (I went to bed and left it hooked up) to clear. I've only had two failures. =

One would only start if you bumped it (suspect excessive contact gap) and the other had a bad coil.

73,  
Robert Downs  
WA5CAB  
Houston

-----  
Message-ID: <004e01be7d5c\$a52b63a0\$2d1c29d8@blah>  
From: "Richard" <rbrunner@gis.net>  
To: Old Tube Radios <boatanchors@theporch.com>  
Subject: RE: SCR-503B  
Date: Fri, 2 Apr 1999 17:59:52 -0500  
MIME-Version: 1.0  
Content-Type: text/plain;  
charset="iso-8859-1"

Content-Transfer-Encoding: 8bit

Halleluia! At last we see one! This has to be the "Huff-Duff" receiver which provided automatic direction finding w%hrend das Weltkreig. (for the Allies) The British versions were designated FH-3 and FH-4. Can you provide a picture, or describe the front panel?

Richard Brunner, AA1P, rbrunner@gis.net

-----  
Message-Id: <v04003a00b32b0431800f@[206.26.104.119]>  
Mime-Version: 1.0  
Content-Type: text/plain; charset="us-ascii"  
Date: Fri, 2 Apr 1999 17:42:45 -0600  
To: Old Tube Radios <boatanchors@theporch.com>  
From: Paul Nelson <drhydro@ames.net>  
Subject: Re: Protecting Transformers, was Inrush Protectors  
Cc: boatanchors@theporch.com

Barry, this is \*really\* good info. And just a sidelight- incandescent light bulbs, particularly garden variety 100W frosted guys- in my kitchen, I have two wall fixtures equipped with the beasts- and also three-setting capacitive touch-sensitive switches, low, medium, and full. One touch is low, the next is medium, the next high, the next off. Every day, both of the fixtures are touched three times when I come downstairs to guzzle the pot o'coffee that allows me to face the day, and thereafter they are normally on throughout the day. BOTH of those light bulbs have been in their respective sockets for close to TEN YEARS now.... without replacement, until two months ago when one of 'em finally burned out.

I think that speaks mightily of the role of inrush current in the demise of filaments and such!

>Bobbi, Larry, Bill and others have written about the turn-on surge of  
>transformers. While Arden might be right about properly sized new  
>+ACI-iron+ACI-,  
>in older equipment, the transformers are much more fragile (and likely the  
>most difficult component to find a replacement for).  
<snip>  
>To summarize, I feel inrush current limiters are an excellent investment.  
>For about +ACQ-3 for an inrush limiter and MOV transient protector, you have  
>done a lot to prevent future problems. And this is generally less than the  
>cost of a new tube rectifier. The next thing to add to prolong a  
>Boatanchor's life would be better ventilation or a fan.  
>  
> 73, Barry L. Ornitz WA4VZQ ornitz+AEA-tricon.net

Paul Nelson W5GNF

"When I go, I want to go quietly, in my

sleep, like my grandfather- not screaming, like his passengers."

"More hay, Trigger?"

"No thanks, Roy, I'm stuffed."

Date: Fri, 2 Apr 1999 20:32:16 -0500

One common solution is to use a variable autotransformer (Variac, Powerstat) to drop the line voltage. This works but it uses a rather expensive transformer if you want to power the whole shack with it.

The main thing to remember here is that the filament transformer secondary must be insulated well enough to handle the line voltage. In many cases, the filament transformers for power rectifiers may be used as they are rated to withstand considerable voltage. Mount the transformer in a ventilated metal box where there is no chance of contacting the connections.

-----  
Message-ID: <3705864C.5EF0@worldnet.att.net>  
Date: Fri, 02 Apr 1999 22:09:00 -0500  
From: "John Dilks, K2TQN" <oldradio@worldnet.att.net>  
MIME-Version: 1.0  
To: Old Tube Radios <boatanchors@theporch.com>  
CC: cusapp@infovia.com.ar  
Subject: [Fwd: technical manual]  
Content-Type: multipart/mixed; boundary="-----6B597E8C661A"

This is a multi-part message in MIME format.

-----6B597E8C661A  
Content-Type: text/plain; charset=us-ascii  
Content-Transfer-Encoding: 7bit

To all,

Could anyone help Cristian find a manual on a GPT-750 ?

--

73' John Dilks, K2TQN

Please visit my OldRadio Museum  
<http://www.eht.com/oldradio/museum>

Webmaster for the Antique Wireless Association  
<http://www.ggw.org/awa> Click on "Page 2"

--and--

for the New Jersey Antique Radio Club  
<http://www.eht.com/oldradio>

-----6B597E8C661A  
Content-Type: message/rfc822  
Content-Transfer-Encoding: 7bit  
Content-Disposition: inline

Received: from adv1.advance.com.ar ([200.9.212.21])  
by mtiwgwc08.worldnet.att.net (InterMail v03.02.07 118 124)  
with ESMTP id <19990403020326.FUEV9195@adv1.advance.com.ar>  
for <oldradio@worldnet.att.net>; Sat, 3 Apr 1999 02:03:26 +0000

Received: from default ([209.13.203.11]) by adv1.advance.com.ar  
(Netscape Messaging Server 3.54) with SMTP id AAA17A7  
for <oldradio@worldnet.att.net>; Fri, 2 Apr 1999 23:03:00 -0300

Message-ID: <001401be7d76\$20f9b040\$0bcb0dd1@default>  
From: "Cristian Sapp" <cusapp@infovia.com.ar>  
To: <oldradio@worldnet.att.net>

This is a multi-part message in MIME format.

```
-----=_NextPart_000_0011_01BE7D5C.F9F81180
Content-Type: text/plain;
    charset="iso-8859-1"
Content-Transfer-Encoding: quoted-printable
```

please a have a GPT-750 (technical materiel corporation transmitter) i =  
need  
service manual.

CRISTIAN SAPP LU6HCQ 73 y Dx

CORDOBA - ARGENTINA

```
-----=_NextPart_000_0011_01BE7D5C.F9F81180
Content-Type: text/html;
    charset="iso-8859-1"
Content-Transfer-Encoding: quoted-printable
```

```
<!DOCTYPE HTML PUBLIC "-//W3C//DTD W3 HTML//EN">
<HTML>
<HEAD>
```

[illegible]

LU6HCQ&nbsp;&nbsp;  73&nbsp;   y Dx</FONT></DIV>  
<DIV><FONT color=3D#000000 size=3D2></FONT>&nbsp;  </DIV>  
<DIV><FONT color=3D#000000 size=3D2>CORDOBA - =  
ARGENTINA</FONT></DIV></BODY></HTML>

-----=\_NextPart\_000\_0011\_01BE7D5C.F9F81180--

-----6B597E8C661A--

-----  
Message-Id: <199904030626.AAA26692@loki.internettport.net>  
From: "Steve" <scb@loki.internettport.net>  
To: Old Tube Radios <boatanchors@theporch.com>  
Date: Sat, 3 Apr 1999 00:10:05 +0000  
MIME-Version: 1.0  
Content-type: text/plain; charset=US-ASCII  
Content-transfer-encoding: 7BIT  
Subject: Re: Two Mysteries  
CC: "Old Tube Radios" <boatanchors@theporch.com>

>"Mystery #1 I found two shields which fit a normal 7 pin miniature tube, made from the usual shiny sheet metal. What makes them a mystery is that they have a lead cylinder pushed down around the outside of the shield, its about 11/4 long and 1/8 thick.

Greetings;

Usual disclaimer;"If memory serves-----".

These were used on the 6J6 L.O.s in the tuners of RCA and other '40s TV sets to kill microphonics from the built-in speaker showing up as sound bars on the screen. Usually had a clamp ring securing it to a sturdy contoured bracket mounted parallel to the tube.

Regards; Steve

-----  
From: mnhopkins@juno.com  
To: Old Tube Radios <boatanchors@theporch.com>  
Date: Sat, 3 Apr 1999 05:56:04 -0600  
Subject: FMLA: Defiance  
Message-ID: <19990403.055609.-406513.0.MNHopkins@juno.com>  
MIME-Version: 1.0  
Content-Type: text/plain  
Content-Transfer-Encoding: 7bit

"How does this look?" Christie asks as she hands me three pages of a recent QST copied in longhand..



I tell her it looks solid to me and that she is almost certain to get a 25 wpm code proficiency certificate for Artesia Bello. That makes her happy, almost, and she carefully addresses an envelope to Newington, with an SASE, before returning to the Jap auxiliary rig to search for YLs.

Everyone in the WAR social club has embraced International Morse Code since they learned the government abandoned it. Christie, the chief bodyguard for my pal Frank who plans to take back the 56-60 mc with a Five Meter Liberation Army, is showing the traditional YL talent for the medium, but even he Satanic Rock obsessed WARmon, her relief, has a 15 WPM certificate. He uses the Signal Corps letters Frank advocates, but Christie calls them "mannish," and copies in script with circles for the dots on lower case letters.

Generally against all things governmental, none of the WAR plan to get licenses, but they choose calls that appeal to them, check to see if they are issued on the University of Arkansas URL, and jump in on the ham bands anyway. Most of them use the name "Art" because it is easy to copy and serves as a secret ID among them. The WARmon uses various prefixes and the suffix INC ("I'm Not a Crook") on a modified CB he calls a President Nixon, but Christie usually just reads the mail on a JP-600 Frank is wrestling with in our basement workshop.

Frank was deep into the SuperPro's greenish carcass when I asked him about the implications of the WAR invasion, but he said he was not worried. Five Meters, he said, was populated with bootleggers, and it was "Ham Radio's Greatest Hour." "Moreover," he said as he tweaked the dual conversion section. "Hams have traded their great unifying talent, the code, for "foreign equipment and pointless pontificating."

I am thus alone in my crowded basement. Christie is copying meaningless Floridora chatter; Frank is lost in the Hammarlund, and the WARmon has raised Chicago near 27.9 to run FM tone modulated telegraphy with "The Morse Voice of Mohammed." The Cooke County chapter of FMLA modifies CB radios to FM for the Nation of Islam.

Yesterday Frank's visitor Preston Anderson went with Frank's broker, Ayn Tagert-Tamez, to a computer show. In a couple of hours they came back with Ayn's daughter, Dagny, in the crowded Corvette. Dagny stayed with my daughter and we have not seen the other two since. We are not discussing that around Christie.

These are rare opportunities, as I can now work on commercial equipment that has nothing to do with converting old 6M gear to 5. I sneak out my project and finally find an open IF transformer in the SX-25. A modern one will fit underneath the old shield and the mod is made in the basement's eerie silence. There is but an occasional snicker from the WARmon as he exchanges Polish jokes with the Fruit of Islam; an occasional dropped screw as Frank spelunks the Super Pro, and a sniffle or two from Christie as she listens to the Yaesu FT-400 RX Frank bought for the 6 and 2M converters.

My project is a garden variety single conversion superhet but the crystal filter, freed of sixty years of dirt, helps on CW and I have hidden a TV horizontal sweep transistor, connected as a Zener, under the chassis to regulate the LO and mixer. The 80 is burned out, but two silicon diodes stand in for it and the audio is now the push pull from a "World Monitor" GE with a bad band switch.

I paid \$25 for the old soldier at a Fort Worth hamfest to a guy who thought all old tube rigs lacked transformers and were "too dangerous to work on." I guess he thought this little black box with the "h" on it was for snuff. I don't have a manual, but Hallicrafters made 25 years worth of rigs without a nickle's worth of difference. I just use an SX-99 diagram and improvise.

The WAR folks, who I am building it for, won't be offended by the modernizations and they will love the name on the panel -- Super Defiant.

de ab5L, Michael Hopkins, Box 226841, Dallas, TX 75222,  
MNHopkins@JUNO.com FMLA XXX  
Student of Tecraft, ICM, and Six Meters' golden age, 1956-58.

-----  
End of BOATANCHORS Digest 2487  
\*\*\*\*\*

>From ???@??? Sun Apr 04 05:33:31 1999  
Message-Id: <199904032046.0AA02823@sco.theporch.com>  
Date: Sat, 3 Apr 1999 14:46:34 CST  
From: Old Tube Radios <boatanchors@theporch.com>  
To: Old Tube Radios <boatanchors@theporch.com>

Subject: BOATANCHORS digest 2488

BOATANCHORS Digest 2488

Topics covered in this issue include:

- 1) Re: BC 1147-A ??????  
by David Newkirk <dpnewkirk@home.com>
- 2) B&W, L850 Tank Coil, Info?  
by Paul Monroe <pmonroe@inwave.com>
- 3) Re: HRO-60  
by Jderm740@aol.com
- 4) RE: Line voltage  
by n6nae@ix.netcom.com (Richard Humphrey)
- 5) RE: BC-1147-A  
by "ROBERT W. DOWNS" <RWDowns\_WA5CAB@compuserve.com>
- 6) RE: SCR-503-B  
by "ROBERT W. DOWNS" <RWDowns\_WA5CAB@compuserve.com>
- 7) Re: TEK 561  
by Henry van Cleef <vancleef@netcom.com>
- 8) Fw: Valient Audio  
by "Don Ehrlich" <ehrlich@olypen.com>
- 9) Re: Line voltage  
by Arden Allen <gumbear@pacbell.net>
- 10) Re: Valient Audio  
by Arden Allen <gumbear@pacbell.net>
- 11) Transformer start-up currents, line voltages, etc.  
by Henry van Cleef <vancleef@netcom.com>
- 12) Re: Line voltage  
by John R Bookout K7JB <k7jb@uswest.net>
- 13) Re: Line Voltage  
by Andre Guibert <aguibert@sympatico.ca>
- 14) Estate Sale Report: TV-4 Manual Wanted  
by Paul Bernhardt <bern@ppdu.nrl.navy.mil>
- 15) RAL-8 caps & connectors questions  
by JPevner@aol.com
- 16) Re: Line Voltage  
by Jim Roik <jnroik@escape.ca>

---

Message-Id: <3.0.6.32.19990403073710.007a0840@mail>

Date: Sat, 03 Apr 1999 07:37:10 -0500

To: Old Tube Radios <boatanchors@theporch.com>

From: David Newkirk <dpnewkirk@home.com>

Subject: Re: BC 1147-A ??????

Mime-Version: 1.0

Content-Type: text/plain; charset="us-ascii"

At 03:48 PM 4/2/99 EST, JESelkregg@aol.com wrote:

>I have a BC1147A.

>Any detailed information available, manual?

I'm on the lookout for a BC-1147 myself. A friend loaned me one as a shortwave broadcast receiver for a few months in 1974 when I'd just moved to Connecticut, and in addition to broadcasts I enjoyed the romance of listening to VOLMET stations (running DSB, full-carrier AM back then -- remember how New York Radio stood out like a beacon at 3001?) with the room lit only by its dial. So if you should ever find yourself wanting to sell yours... :-D

After a bit of drilling through a couple of Web search engines, I discovered a listing for the BC-1147 in an F. W. Chesson page at the address:

<http://www.maritime.org/wish-chesson/BC-2.EQP>

The entry, modified to remove hard spaces, reads like this:

BC-1147\*, DF Receiver, 1.5-30 MC, 13 tubes, U/W BC-1159, CD-830, FM-61, MC-412, MC-413,472, PN-32,47, RM-43, P/O SCR-291,502, TM 11-256,4041.

So it's a DF receiver, part of SCR-291 and -502, used with BC-1159, etc, and you're looking for TM 11-256, and maybe also TM 11-4041, for documentation. (I don't know what the asterisk means; probably by looking through more pages of FWC's list, I'd find the key. Just delete the BC-2.EQP from the URL to see a list of all the files in that subdirectory of FWC's server.)

I can't remember if the 1147 has a BFO -- does it? What are its front-panel controls?

One BC-1147 anecdote: Even though I was using only a short wire for an antenna, I noticed that, in the early evenings, one strong station cross-modulated all others I'd tune into on the 49-meter band. That one strong station was Radio Canada on 5960, which made sense because I was just one hop from Sackville, New Brunswick, the RCI site (and I think they were running 250 kW). I believe, but can't remember for sure, that I solved the problem by replacing (with a value an order of magnitude lower) or shorting (if the resistor was connected from the AGC line to ground) a multi-megohm resistor in the grid return of one or both of the set's RF stages (think it has two) -- I'd have to poke into one again to relearn the fix. The RCI signal was causing cross-modulation by driving the stage(s) grid-returned through that resistor into grid current. Hindsight and experience with other BAs now suggests that the original resistor may merely have been defective in the "higher than marked resistance" sense.

Second BC-1147 anecdote: I saw what looked like a beat-up BC-1147 at a recent hamfest (I'm in northern NJ), and closer inspection revealed that (1) it had already been sold and (2) its ID plate was gone! was, according to the seller, an "LF" radio. So perhaps the 1147 has a counterpart that covers 1500 on down.

Thanks for the memories!

73,

Dave Newkirk, W9VES  
dpnewkirk@home.com

-----  
Message-ID: <370620CD.1A56E90E@inwave.com>  
Date: Sat, 03 Apr 1999 08:08:14 -0600  
From: Paul Monroe <pmonroe@inwave.com>  
MIME-Version: 1.0  
To: Old Tube Radios <boatanchors@theporch.com>  
Subject: B&W, L850 Tank Coil, Info?  
Content-Type: text/plain; charset=us-ascii  
Content-Transfer-Encoding: 7bit

Larry and the group,

Here is the scoop on the B&W 850 series of inductors:

Model 851:

Power level: 250W AM, 500W SSB and CW  
Plate voltage: 1250V - 200mA AM, 2000V - 250mA, CW and SSB  
Plate Load Impedance: 2500 to 5000 ohms

Bands and Inductance(uH): 80M - 14, 40M - 6.3, 20M - 1.6, 15M - .8, 10M - .52

Model 850A:

Power level: 1000W AM, 2000W SSB and CW  
Plate Voltage: 2000 - 4000Vdc.  
Plate Load Impedance: 2500 - 5000 ohms.

Bands and Inductance(uH): 80M - 13.6, 40M - 6.5, 20M - 1.75, 15M - 1, 10M - .8

In addition, I believe that the 850A also had a version suitable for 160M but I don't have the information on the 160M inductance. If I find it, I will post it to the group.

Model 852:

Power level: 1000W AM, 2000W SSB and CW

Plate Voltage: 2000 - 4000Vdc.

Plate Load Impedance: 1500 - 3000 ohms.

Bands and Inductance(uH): 80M - 7, 40M - 3.72, 20M - 2.34, 15M - 1.34,  
10M - .95

The 850 is designed for use with such tubes as the 4-250, 4-400 etc.  
while the 852 is designed for use with tubes like the 4CX1000 etc.

73,

Paul Monroe, W9MEH

-----  
From: Jderm740@aol.com  
Message-ID: <e5f36afd.24377f3d@aol.com>  
Date: Sat, 3 Apr 1999 09:27:09 EST  
Subject: Re: HR0-60  
To: Old Tube Radios <boatanchors@theporch.com>  
CC: lrware@pipeline.com  
MIME-Version: 1.0  
Content-Type: text/plain; charset="us-ascii"  
Content-Transfer-Encoding: 7bit

Larry

I looked in my manual and it says the converter IF is 1990kc +/-3kc. I don't see any mention of the numbers you posted. If there is a typo in the manual I haven't been able to find it .

Jack                      Jderm740@aol.com

-----  
Date: Sat, 3 Apr 1999 09:34:28 -0600 (CST)  
Message-Id: <199904031534.JAA14840@dfw-ix1.ix.netcom.com>  
From: n6nae@ix.netcom.com (Richard Humphrey)  
Subject: RE: Line voltage  
To: Old Tube Radios <boatanchors@theporch.com>

Hi gang:

Barry Ornitz wrote "running radios designed for 110 - 115 volts on our present 120 - 125 volt line" or some such.

What radios were designed for 110V? All the manuals for all the gear I've got says plug into 117 +/- 10%. The tolerance may not be explicitly stated, but the old RMA standard was 117 +/- 10%. Full performance was supposed to be guaranteed down to about 106, and nothing was dissipating excessive power up to over 128. The exception is Collins which says feed it 115 volts, which I believe was +/- 10 volts.

Line voltage creep is just an urban legend.

Alternating current has always been distributed in North America at 120 volts or better. I've traced this right back to before the turn of the century. Sacramento California went electric in 1896 at 125 VAC, 60 cycles.

Mr. Edison started this mistake when his DC system ran at 110 volts. He was first and "one-ten" entered the language to mean any electric power utility. It has stuck with us to this day as part of the vernacular. I still see articles being published which say to plug into any convenient 110 outlet. OK, where are they?

When AC hit, it was able to run at whatever voltage was desired, and the industry went for 120 to 125. Probably to outshine Edison's dim bulbs! See, AC is better!

BA radios have always been running at today's voltage. 120 to 125 is well within the RMA tolerance range. Should you reduce it slightly to ease the strains? Use an inrush limiter? Couldn't hurt. Just stop obsessing about it, and when someone else says "one-ten" please set them straight.

Richard

-----  
Date: Sat, 3 Apr 1999 10:58:35 -0500  
From: "ROBERT W. DOWNS" <RWDowns\_WA5CAB@compuserve.com>  
Subject: RE: BC-1147-A  
To: Old Tube Radios <boatanchors@theporch.com>  
Message-ID: <199904031058\_MC2-7074-9A89@compuserve.com>  
MIME-Version: 1.0  
Content-Transfer-Encoding: quoted-printable  
Content-Type: text/plain; charset=ISO-8859-1  
Content-Disposition: inline

Joe & Group,

BC-1147 is a DF receiver, P/O SCR-291 and SCR-502. I don't have any of the manuals for some reason, but the numbers are TM 11-243, TM 11-256 and TM

11-4041.

73,  
Robert Downs  
WA5CAB  
Houston

-----  
Date: Sat, 3 Apr 1999 10:58:33 -0500  
From: "ROBERT W. DOWNS" <RWDowns\_WA5CAB@compuserve.com>  
Subject: RE: SCR-503-B  
To: Old Tube Radios <boatanchors@theporch.com>  
Message-ID: <199904031058\_MC2-7074-9A88@compuserve.com>  
MIME-Version: 1.0  
Content-Transfer-Encoding: quoted-printable  
Content-Type: text/plain; charset=ISO-8859-1  
Content-Disposition: inline

Lenox & Group,

I have TM 11-246A which covers SCR-503-A but don't have 11-246B or the later 11-246 which covers both models. At least in the -A, there are two receivers, the BC-973 which covers 1.0-3.0 MC and the BC-1003 which covers 0.1-1.0 MC. Don't appear to have any of the associated hardware.

73,  
Robert Downs  
WA5CAB  
Houston

-----  
From: Henry van Cleef <vancleef@netcom.com>  
Message-Id: <199904031601.IAA17042@netcom2.netcom.com>  
Subject: Re: TEK 561  
To: Old Tube Radios <boatanchors@theporch.com>  
Date: Sat, 3 Apr 1999 09:01:27 -0700 (MST)  
Cc: boatanchors@theporch.com  
MIME-Version: 1.0  
Content-Type: text/plain; charset=US-ASCII  
Content-Transfer-Encoding: 7bit

As Steve discourses

>  
> Greetings;  
>  
> Can someone provide info concerning specs, reputation, reliability &



> desirability of a Tektronix R561 B o'scope w/ 3B3 timebase & 3A1 dual  
> trace amp plug-ins. Is it worth fooling with? Thanx for any assistance.  
> BTW, It was a freebie, orphaned on my doorstep.  
>

These are good general-purpose scopes. The 561 series frame has only the CRT, power supplies and calibrator; the rest is in the plug-ins. 3A1 and 3B3 are very good for general purpose work. Compared to the 535A with CA, you have somewhat lower maximum bandwidth (10 Mhz vs. 15), no delay line in the vertical (not a problem when you are looking at sine wave signals), and a lower writing rate to the CRT. However, you are also looking at much lighter weight, less power consumption and heat, and no fan noise. Only real drawbacks compared to a 535A, aside from lower bandwidth and writing rate are that a lot of electronics are packed into those plug-ins, and the knobs are much smaller and closer together. The 3A1 uses a bunch of nuvistors, and the output drivers to the CRT are odd-ball tubes. If the CRT is good (gives a trace with HV OK, and does not reverse if brightness is increased), it's a "user" that will give you good service.

One myth that I see from time to time is the notion that the Dumont (Fairchild/Dumont) 766H, which is the same general size and configuration, is a "lift" from the Tek design and that there is interchangeability with Tek. That is not the case. While the general configuration is similar, the 766H is a 50Mhz unit with very different internal circuits and, with the appropriate plug-ins, was a real match for the 547 in side-by-side comparisons. However, it never sold in any real quantity (Tek owned the market in the 1960's) and it's full of special Fairchild transistors that can be very difficult to replace with modern substitutes without a lot of engineering work.

The 561 and 565 (dual beam, CRT pretty much an orphan these days) are good scopes. I'd stay away from a 564 (storage CRT, limited life), although if you've got one, and it works, go ahead and use it.

--

=====  
Hank van Cleef  
=====

-----  
Message-ID: <010901be7def\$680eaac0\$49cfeed0@ehrlich>  
From: "Don Ehrlich" <ehrlich@olypen.com>  
To: Old Tube Radios <boatanchors@theporch.com>  
Subject: Fw: Valient Audio  
Date: Sat, 3 Apr 1999 08:30:57 -0800  
MIME-Version: 1.0  
Content-Type: text/plain;  
charset="iso-8859-1"

Content-Transfer-Encoding: 7bit

Do any of you experienced Valient folks have any idea why my audio loop oscillates at gain settings above 50 percent? It is definately in the audio chain only and not related to RF getting back into the audio section. Oscillation is at about 3KHz or so and sounds sinusoidal.

The instability in the audio loop involves the first stage of the 12AX7 through to the modulators themselves ... all must be active for oscillation to occur. I sort of fixed it by adding an 82k resistor across the 1 meg grid leak of the first stage of 12AX7 ... it works but I don't know why. All component values are OK and the audio chain is unmodified ... there is no feedback through the power supply filters or anything obvious like that and it is not related to microphone. Tube substitution is no help. A large capacitor across that first 12AX7 grid leak which removes all signals from the grid does NOT suppress the oscillation. A large capacitor at the plate of the first stage of the 12AX7 and anywhere else in the audio chain DOES suppress the oscillation. For some reason that first 12AX7 stage just seems to need to have it's operating point adjusted by reducing the value of it's grid leak.

One thought I had is that, with the modulation xmfr so close to the low level audio amp, some stray flux from the mod transformer could be inducing audio signal back into the first stage somehow ( transformer cores that have an air gap radiate lots magnet flux at the gap ... so the modulation xmfr is surely radiating a lot).

I guess I am happy with the fix I have but am curious to know if this an inherent Valient problem and if there is a more elegant cure available.

Don K7FJ

-----  
Date: Sat, 03 Apr 1999 08:54:09 -0800  
From: Arden Allen <gumbear@pacbell.net>  
Subject: Re: Line voltage  
To: Old Tube Radios <boatanchors@theporch.com>  
Message-id: <0F9M00EJSHKR5E@mta2.snfc21.pbi.net>  
MIME-version: 1.0  
Content-type: text/plain; charset=ISO-8859-1  
Content-transfer-encoding: 7bit

Richard;

Thanks for sounding the death knell of another piece of BA mythology. I didn't know about the line voltage in North America (US anyway) being

always 120 but I never found a radio or test equipment that said 110 volts.

The places you find 110 VAC are usually on branches that are loaded near max. I can get my lab down to 113 V, typically 120-122 V. I find a greater percentage variation in heater voltages due to transformers not being matched to their usage. If folks want to get it right I would suggest mounting 10 VAC voltmeters on the front panels of their BA's and have a rack of adjustable set-point servo-controlled variacs, one for each outlet in the shack. And run a BA erra chart recorder to make sure line voltage straying is not excessive without giving Edison Electric, Gas & Soda Pop Bottle Recycling a hard time. You know where this idea is going.....

Arden Allen KB6NAX Vallejo, CA gumbear@pacbell.net

-----  
Date: Sat, 03 Apr 1999 09:05:01 -0800  
From: Arden Allen <gumbear@pacbell.net>  
Subject: Re: Valient Audio  
To: Old Tube Radios <boatanchors@theporch.com>  
Message-id: <0F9M00EI2I2P5E@mta2.snfc21.pbi.net>  
MIME-version: 1.0  
Content-type: text/plain; charset=ISO-8859-1  
Content-transfer-encoding: 7bit

Hello Don;

> Do any of you experienced Valient folks have any idea why my audio  
> loop oscillates at gain settings above 50 percent? .....

Did you try bridging screen and B+ bypass and filter caps to see if you have an open one? Put a 10 ohm (surge limiter) resistor in series with a 20 or so microfarad 'lytic and connect across caps one at a time. If you get a noticeable change in the oscillation, connect the cap directly to see if it kills the oscillation. Be wary of high voltages.....if it ain't easy to get to a cap, turn rig off before connecting external cap.

Arden Allen KB6NAX Vallejo, CA gumbear@pacbell.net

-----  
From: Henry van Cleef <vancleef@netcom.com>  
Message-Id: <199904031715.JAA22837@netcom2.netcom.com>  
Subject: Transformer start-up currents, line voltages, etc.  
To: Old Tube Radios <boatanchors@theporch.com>  
Date: Sat, 3 Apr 1999 10:15:57 -0700 (MST)  
MIME-Version: 1.0  
Content-Type: text/plain; charset=US-ASCII  
Content-Transfer-Encoding: 7bit

Once again we have threads going on these topics. Some years ago, I spent several weeks studying the startup characteristics of the 208V single phase power transformers in the Raytheon 730 computers used in the Enroute Air Traffic Control System. These transformers fed a bridge of silicon rectifiers that charged up banks of 9000 Mfd. capacitors, and were fed from a 460 VDC/208VAC 3-phase delta static inverter. I spent weeks with a Tek 547, a current transformer, and a scope camera, turning these power supplies off and then back on again, looking for a peak that would fire a single sweep on the 547 and give me a picture. Since this was 1970, memory of some details has faded, but the fact that I had to go to Va. and present (and defend) these findings to the FAA, Mitre, and a bunch of others does leave the general characteristics still clearly in mind.

What I found was that if the transformer was disconnected at its magnetization peak (past maximum current in the input cycle), and then repowered just before the instant of maximum voltage, we would get a half-cycle current waveform with current values equal to the E/R value of the transformer winding with no iron present (i.e., same current for the first half cycle as you would get if the winding were not in a core). The reverse half-cycle was approximately normal current, then the second same-direction half-cycle would be about 50% of the maximum value, walking down to normal currents (balanced) in about ten cycles. These transformers had fairly square BH loop iron which needed a high coercive force to begin shifting magnetism, and were probably somewhat worse in the first half-cycle of same-direction magnetization than the iron used in consumer and similar commercial electronics. The figure of 1300 amps sticks in my mind, which implies 6-7 ohms open-air DC impedance (mostly resistance), and we had to consider that the source impedance of the wiring was about an ohm outside the transformer. The question we were addressing was the maximum half-cycle energy load that would be reflected back to the inverter semiconductors. You can brush the rust off your integral calculus to calculate this, but the number is quite small compared to "gut feel" estimates. The energy required to charge the capacitor bank, over several half cycles, was much higher, and the first half-cycle worst-case had negligible effect.

What are the physical forces on the windings? While we did not consider these, I think that working out the amount of inductance represented by the winding in free air in a case where it is the only inductance slowing current in that first half cycle, is down in the millihenry range, and the forces between windings generated by the B component are still relatively small. Somebody can go through the exercise of calculating all this, but I think it is likely that the forces would be higher under normal load than in the free air case. Also, you would need to consider magnetostrictive effects in the core

(physical expansion and contraction as its magnetism is reversed).

My recollection is that overall, we determined that the inverter semiconductors would swallow the energy peaks. We did consider fusing/breaking/crowbarring ideas, but could not come up with anything that would both be reliable (in the long run) and effective. Of course, the circuit involved here was intended to charge about 0.1 farad up to 100 volts, and all of the circuit wiring had to be considered in impedance calculations. I don't recall that we put any negative-coefficient resistance devices in the circuit, and I think all of the things we considered were either too slow or too exotic to pursue very far. Overall, I think transformer reliability is much more affected by heat and by long-term (decades) electrical and mechanical stability of insulation materials, and that if a transformer won't swallow a few half cycles of high inrush current, it's not long for this world operating at normal currents and temperatures.

So far as mains power AC line voltages go, 115, 120, and 125 volt 60 Hz. power systems were all well-established before 1930.

I have forgotten when the RMA settled on 117.5 +/-10% as nominal mains power in the US, but it was in the early thirties. I'm not aware that 110 VAC systems were ever used in significant quantities----110 is the voltage for Edison DC systems, used in NYC, Boston, and some other cities into the 1960's. Problems with AA5 tube longevity traceable to 125-130 volt domestic mains were an issue in 1940. However, there were also problems with variations between tube heaters in AA5's---you can see anything from 10 to 15 volts on nominal 12.6 volt heaters if you do some measurements on a bunch of AA5's. Also, some of the noises I hear these days about high line voltages seem traceable to meter accuracy. 5% accuracy of a 150 volt full scale AC range on a typical multimeter is an error of 7.5 volts either way, and a meter that has been around a while probably won't make 5%. Digital meters give readings that imply much more accuracy than they have, particularly on AC ranges. I want to hear about traceability of the calibration to an AC voltage standard before I believe some of these measurements.

Given the technology of the thirties, the newness of a lot of electrifications (particularly in sparsely settled areas and REA activities with farms and ranches) AC line voltages today are probably less variable than they were 50-60 years ago, and the nominal centers have not changed. Designers these days have much more concern about low line voltage, brownouts, etc.

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=====  
Hank van Cleef  
=====

-----  
Message-ID: <37065270.6871BF5D@ptld.uswest.net>

Date: Sat, 03 Apr 1999 09:40:00 -0800

From: John R Bookout K7JB <k7jb@uswest.net>

MIME-Version: 1.0

To: Old Tube Radios <boatanchors@theporch.com>

CC: Old Tube Radios <boatanchors@theporch.com>

Subject: Re: Line voltage

Content-Type: text/plain; charset=us-ascii

Content-Transfer-Encoding: 7bit

LINE VOLTAGE OPERATION FROM 90 to 136 V AC:

This interesting thread prompted me to recall what Tektronix did about line voltages for Oscilloscope Power Supplies. This was before 1958. I remember when I was a test technician on the test and calibration bench, we always checked power supply regulation from 90 to 136 V AC. If the power supply would go out of regulation inside this range, we had to troubleshoot the power supply and fix the problem.

I always wondered where one would encounter such extremes in line voltages. Perhaps in the field, running off of some generating set whose line voltage would fluctuate!

In one of Tek's manuals, they stated that nominal input line was 115V AC (not 120V!) and provided 3 line switch positions or 3 ranges on transformer taps as L0, M & HI:

	Regulating Range	
	115 Volts	or 230 Volts
L0	90 - 110 V	180 - 220 V
M	104 - 126 V	208 - 252 V
HI	112 - 136 V	224 - 272 V
	48 - 440 Hz	

Selecting the 115, rather than 230 line; notice that the M range, stated backwards, was from 126 - 104 = 22/2 = 11 and 11 + 104 = 115 V AC. Hence, the Nominal Line Voltage Value. With a wide range of line voltage accommodation 90 - 136 V AC.

73's John

-----  
Arden Allen wrote:

>

> Richard;  
>  
> Thanks for sounding the death knell of another piece of BA mythology. I  
> didn't know about the line voltage in North America (US anyway) being  
> always 120 but I never found a radio or test equipment that said 110 volts.  
> The places you find 110 VAC are usually on branches that are loaded near  
> max. I can get my lab down to 113 V, typically 120-122 V. I find a  
> greater percentage variation in heater voltages due to transformers not  
> being matched to their usage. If folks want to get it right I would  
> suggest mounting 10 VAC voltmeters on the front panels of their BA's and  
> have a rack of adjustable set-point servo-controlled variacs, one for each  
> outlet in the shack. And run a BA error chart recorder to make sure line  
> voltage straying is not excessive without giving Edison Electric, Gas &  
> Soda Pop Bottle Recycling a hard time. You know where this idea is  
> going.....  
>  
> Arden Allen KB6NAX Vallejo, CA gumbear@pacbell.net

--  
Best 73's John  
Amateur Radio K7JB -- Portland Oregon 97229

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Date: Sat, 3 Apr 1999 13:55:01 -0500 (EST)  
Message-Id: <199904031855.NAA14830@smtp11.bellglobal.com>  
Mime-Version: 1.0  
Content-Type: text/plain; charset="us-ascii"  
To: Old Tube Radios <boatanchors@theporch.com>  
From: Andre Guibert <aguibert@sympatico.ca>  
Subject: Re: Line Voltage

Bonjour to All  
Quebec Hydro has accepted (More or Less) learned customer's  
interpretation of the 10% swing, 5% above, 5% below.  
Installed a recording voltmeter in "My Acres of Boatanchors"  
and the line is almost straight, even though I am almost  
at the end of the power line.  
The joy you get when you turn ON/OFF- ON/OFF your WS19 and  
don't have to retune.  
Andre  
PS Jack: L'Audace, toujours l'Audace.

Andre Guibert  
aguibert@sympatico.ca

-----  
Date: Sat, 3 Apr 1999 14:18:18 -0500 (EST)

From: Paul Bernhardt <bern@ppdu.nrl.navy.mil>  
To: Old Tube Radios <boatanchors@theporch.com>  
Subject: Estate Sale Report: TV-4 Manual Wanted  
Message-Id: <Pine.A32.4.03.9904031349510.45313-100000@ppdu.nrl.navy.mil>  
Mime-Version: 1.0  
Content-Type: TEXT/PLAIN; charset=US-ASCII

Gang,

I went to the Estate sale in Virginia on Thursday and Saturday. This sale announced on the DC Boatanchors list by Fred Bohner. It was the estate of WALTER J STEWART (AA4I) of ANNANDALE, VA. Mr Stewart was born 10/21/07 and he lived to age 91. His basement was loaded with WWII radios, BA components (transformers, coils, condensers, cables, resistors, etc.), manuals, books, etc. Thursday the radios were selling for \$25 each. Saturday was half price day.

I picked up a TV-4 tube tester. Does anyone have a manual or copy that I could obtain?

Thanks, Paul Bernhardt

Work: P.A. Bernhardt	Home: Paul Bernhardt, KF4FOR
Code 6794	5704 Ridge View Dr.
Naval Research Laboratory	Alexandria, VA 22310
Washington, DC 20375	
Tel: 202-767-0196	703-960-9656
FAX: 202-767-0631	

-----  
From: JPevner@aol.com  
Message-ID: <344fb87.2437d572@aol.com>  
Date: Sat, 3 Apr 1999 15:34:58 EST  
Subject: RAL-8 caps & connectors questions  
To: Old Tube Radios <boatanchors@theporch.com>  
MIME-Version: 1.0  
Content-Type: text/plain; charset="us-ascii"  
Content-Transfer-Encoding: 7bit

Folks;

Just received RAL-8 via UPS in one piece! It is Magnavox make ser #1007 contract

21827. Looks real sharp, but I have some questions.

Caps C117,118,122 at back appear to have leaked a gunky liquid which has dried into a resinous goop. The only thing I could find to remove it was alcohol (hic). It did discolor the aluminum shield cans and chassis though (the goop that is). These caps are 250 Volt 1Mfd rectangular cans about 1.5" tall by 1" by 1/2". What is the liquid inside? Do I need to take particular precautions in disposal? Having leaked, should I open them from the bottom, clean them out and put in a modern cap. This could be a truly



invisible repair if I was real careful. I haven't seen any caps that look quite like this at hamfests.

Second issue: The Antenna connector at the back is unknown to me. It is about 3/4 inch coaxial and looks to be push-on. Does anybody have a source for the female mating connector?

Lastly: The main panel on the front has most of the markings. It appears to be some kind of plastic laminate, It and the Decibals marking circle have become "faded". The black background has become hazy with flecks of lighter color. Oddly, the Audio Tuning marker dial appears to still be new looking with a deep solid black color. Does anyone have any restoration tips on these?

Thanks much for any help, or suggestions/info you can provide. With a little work, this one could be a "9", and I would like to get it on the air with some appropriate TX(?).

73 de N1LIS (Jon)

p.s. please e-mail me direct and cc the group if appropriate, as I get the list in digest form.

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Message-Id: <3.0.1.32.19990403144710.006d426c@mail.escape.ca>  
Date: Sat, 03 Apr 1999 14:47:10 -0600  
To: Old Tube Radios <boatanchors@theporch.com>  
From: Jim Roik <jnroik@escape.ca>  
Subject: Re: Line Voltage  
Cc: aguibert@sympatico.ca  
Mime-Version: 1.0  
Content-Type: text/plain; charset="us-ascii"

I'm working from memory, which is a dangerous thing.

Most utilities will do very little if the voltage is in the range 109V to 127V. The emergency range is 103 to 129 V. Because of voltage drop on the feeder, the nearer you are to the station, the higher your voltage will be, and the more likely it will be in the 125 to 127 range. As you go down the feeder the voltage will drop and there will be more variation due to loading. If you are at the end you will see the lowest voltage and the greatest variation as everyone in front of you draws more or less current. The automatic tapchanger control in the station reads the local voltage and is programmed with compensation for line drop so it does try to maintain some order of balance to the voltage down the feeder.

In most urban areas one is likely to see voltages in the 120 to 125 range. In rural areas you will get greater variation, mine runs 117 to 120 V.

Back in time, there was more variation down the feeder as automatic voltage control was not used. The crews started at the station with about 125 V and ran the wire as far as they could, before the complaints about dim lights came in.

In the utility business, 110V, 115V, 117V and 120V are all the same thing and mean 1/2 of the single phase service brought into the house. What is important is that the actual measured voltage be between 109 and 127.

Jim

At 01:55 PM 4/3/99 -0500, you wrote:

> Bonjour to All  
> Quebec Hydro has accepted(More or Less) learned customer's  
> interpretation of the 10% swing, 5% above, 5% below.  
> Installed a recording voltmeter in "My Acres of Boatanchors"  
> and the line is almost straight, even though I am almost  
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> The joy you get when you turn ON/OFF- ON/OFF your WS19 and  
> don't have to retune.  
> Andre  
> PS Jack: L'Audace, toujours l'Audace.  
>  
>  
>Andre Guibert  
>aguibert@sympatico.ca  
>  
>

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End of BOATANCHORS Digest 2488

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